1. public class Main

{

public static void printsubarr(int []ar)

{

int n=ar.length;

for(int i=0;i<n;i++)

{

int sum=0;

for(int j=i;j<n;j++)

{

sum=sum+ar[j];

if(sum==0)

{

System.out.println("subarray "+i+" .. "+j+" ");

}

}

}

}

public static void main(String[] args) {

int []ar={3, 4, -7, 3, 1, 3, 1, -4, -2, -2 };

printsubarr(ar);

}

}

// Java program to print all subarrays

// in the array which has sum 0

import java.io.\*;

import java.util.\*;

// User defined pair class

class Pair

{

    int first, second;

    Pair(int a, int b)

    {

        first = a;

        second = b;

    }

}

public class GFG

{

    // Function to print all subarrays in the array which

    // has sum 0

    static ArrayList<Pair> findSubArrays(int[] arr, int n)

    {

            // create an empty map

            HashMap<Integer,ArrayList<Integer>> map = new HashMap<>();

            // create an empty vector of pairs to store

            // subarray starting and ending index

            ArrayList<Pair> out = new ArrayList<>();

            // Maintains sum of elements so far

            int sum = 0;

            for (int i = 0; i < n; i++)

            {

                // add current element to sum

                sum += arr[i];

                // if sum is 0, we found a subarray starting

                // from index 0 and ending at index i

                if (sum == 0)

                    out.add(new Pair(0, i));

                ArrayList<Integer> al = new ArrayList<>();

                // If sum already exists in the map there exists

                // at-least one subarray ending at index i with

                // 0 sum

                if (map.containsKey(sum))

                {

                    // map[sum] stores starting index of all subarrays

                    al = map.get(sum);

                    for (int it = 0; it < al.size(); it++)

                    {

                            out.add(new Pair(al.get(it) + 1, i));

                    }

                }

                al.add(i);

                map.put(sum, al);

            }

            return out;

    }

    // Utility function to print all subarrays with sum 0

    static void print(ArrayList<Pair> out)

    {

            for (int i = 0; i < out.size(); i++)

            {

                Pair p = out.get(i);

                System.out.println("Subarray found from Index "

                        + p.first + " to " + p.second);

            }

    }

    // Driver code

    public static void main(String args[])

    {

            int[] arr = {6, 3, -1, -3, 4, -2, 2, 4, 6, -12, -7};

            int n = arr.length;

            ArrayList<Pair> out = findSubArrays(arr, n);

            // if we did not find any subarray with 0 sum,

            // then subarray does not exists

            if (out.size() == 0)

                System.out.println("No subarray exists");

            else

                print(out);

    }

}